Recovery of yearling calves from Fescue Toxicosis

G.E. Aiken[1], M.L. Looper[2], S.F. Tabler[2] and J.R. Strickland[1]
[1]Forage-Animal Production Research Unit, Lexington, KY, U.S.A. ,[2]Dale Bumpers Small Farms Research Center, Booneville, AR, U.S.A., Email: geaiken@ars.usda.gov.

Keywords: *Lolium arundinaceum,* tall fescue, ergot alkaloids, fescue toxicosis

Introduction Tall fescue (*Lolium arundinaceum* (Schreb.) S.J. Darbyshire) is widely utilized for grazing in the transition zone between the temperate and subtropical regions of the eastern U.S.A. Cattle grazing tall fescue frequently exhibit fescue toxicosis, a malady caused by consumption of toxins produced by the endophyte, *Neotyphodium coenophialum*. Symptoms of fescue toxicosis include retention of rough hair coat, increased body temperature and laboured respiration. Heat stress may be severe at onset of high ambient temperature and humidity. Transporting cattle exhibiting toxicosis can therefore be difficult because combined stresses of the toxicosis and transporting often result in high mortality. An experiment was conducted to measure trends in rectal temperatures for yearling steers following removal from tall fescue and placement on a fescue-free diet.

Materials and methods A grazing experiment was conducted at the USDA-ARS Dale Bumpers Small Farms Research Center in Booneville, AR to evaluate interactions between implantation with anabolic agents and stocking rate on steer weight gain. At the conclusion of the experiment on 22 June 2004, the steers (n = 36) were placed in a common pasture of bermudagrass (*Cynodon dactylon* (L.) Pers.), and rectal temperatures were collected at 0, 24, 48, 72, 144, 192, and 216 h after removal from tall fescue pastures. Upon removal from pastures, hair coats were rated as being rough, transitional, or sleek. Rectal temperatures were statistically analyzed with a PROC MIXED model of SAS evaluating previous treatment effects as a discrete variable and temporal effects as a continuous variable.

Results Previous treatments did not influence (P>0.10) trends in rectal temperatures. Over 95% of the calves had either rough or transitional hair coats, which clearly indicated that nearly all of the cattle were exhibiting toxicosis and heat stress (Figure 1). There was a quadratic (P < 0.001) change in rectal temperatures with time on the fescue-free diet (Figure 2). Rectal temperature increased from 0 to 24 h. This was likely related to an increase in mean daily temperatures from 26.3 to 29.7 ^{O}C between the first and second days of the experimental period. Rectal temperatures were high until approximately 120 h, but then showed a substantial decline in temperature by 196 h and a greater decline at 216 h. Rectal temperatures measured at 196 h (8 d) and 216 (10 d) indicated an improvement in health status.

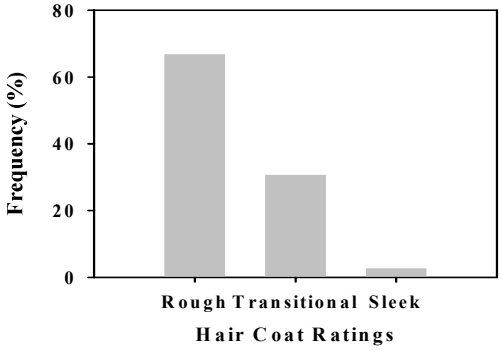

Figure 1 Hair coat ratings

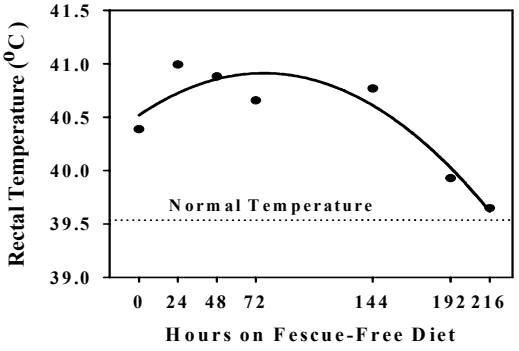

Figure 2 Relationship between hours on fescue-free diet and rectal temperature

Conclusion Results indicated that heat stress can be reduced in cattle exhibiting fescue toxicosis if they are provided diets free of endophyte-infected tall fescue for 8 to 10 days. Although complete alleviation of fescue toxicosis may not be claimed, an improvement in health status was apparent.